	A	B	C	D	E	F	G	H	I
1	Worksheet for Chapter 2 BOC Questions							3/17/2017	
2									
3	We use BOC Question 2-6 to illustrate some points about the CAPM, the SML, and Excel. For additional								
4	information on Excel, see the Tool Kit for Chapter 2.								
8									Rate of Return Ca
9	The following returns were earned on the market and on Stocks X and Y during the last 5 years:								For the Market:
10									Ending
11			Percentage Returns						Price
12	Year	Market	Stock X	Stock Y					$100.00
13	1	20%	16%	28%					$118.00
14	2	8%	8%	8%					$124.94
15	3	15%	12%	20%					$140.68
16	4	-6%	-2%	-15%					$128.74
17	5	23%	18%	33%					$154.35
18	6	20%	16%	-70%					$180.72
19	Avg 1-5	12.0%	10.4%	14.8%					
20									
21	Beta X:		0.69	From					
22	Beta Y:		1.66	below					
23									
24	Could get betas by regression, but an easier way is to use the LINEST function. Click fx > Statistical >								
25	LINEST and then follow the menu to get beta X = 0.69 and beta Y = 1.66. Here's the completed dialog box for X. You								
26	can use the data to find beta to Y as an exercise, and also to find the revised beta based on years 2-6.								
27									
28									
29	Beta X:	0.69							
30	Beta Y:	1.66							
31									
32									
33									
34	SML Analysis:								
35	Risk-free rate:		8.0%						
36	Market return:		12.0%						
37									
38									
39									
40									
41	r(X) = r(rf) +		b(r(Market) - r(fr))						
42		8.0%	+	2.7%	=	10.7%	= Predicted return for X.		
43									
44	r(Y) = r(rf) +		b(r(Market) - r(fr))						
45		8.0%	+	6.6%	=	14.6%	= Predicted return for Y.		
46									
47	New Beta Y:		0.19						
48									
49	New r(y):		8.8%						

Beta Graph, Years 1-5 Only

(chart axes: Stock Return (%) vertical from -30% to 40%; Market Return (%) horizontal from -10% to 40%; series X and Y)

LINEST dialog box:
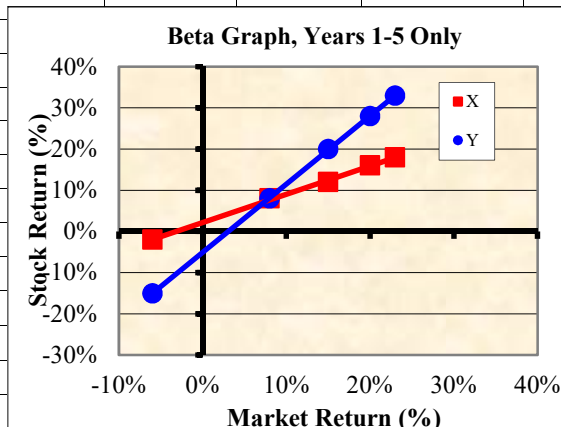
Known_y's C13:C17 = {0.16;0.08;0.12;-0.0...
Known_x's B13:B17 = {0.2;0.08;0.15;-0.0...
Const   = logical
Stats   = logical

= {0.68539325842696...
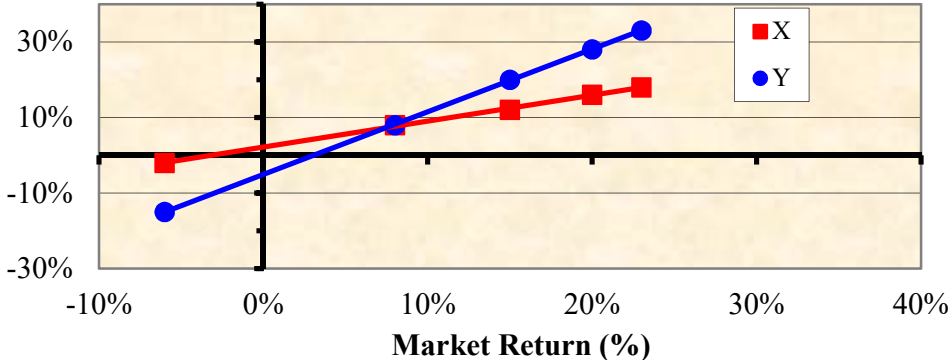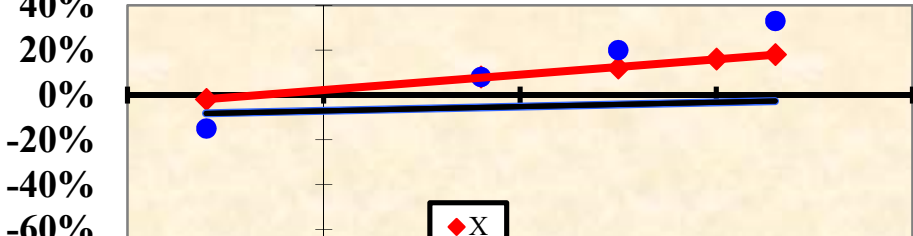
Returns an array that describes a straight line that best fits your data, calculated by using the least squares method.

Known_x's is an optional set of x-values that you may already know in the relationship y = mx + b.

Formula result =   0.69   OK   Cancel

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	A	B	C	D	E	F	G	H	I
50									
51	We could also use the statistical function RSQ to calculate the R-squares for the betas.								
52	For Y R-square dropped from 1.0 to .0029. This indicates that the beta, and the CAPM								
53	required return, are being measured with a lot of error. So, we cannot trust the accuracy								
54	of the new estimated required return.								
55									
56	We can show the data in graph form; we provide graphs below. To make the first chart, you would highlight the data								
57	range B13:D17. Then click the chart icon. Then click "Scatter" and then click the box with lines and data point								
58	indicators. Excel assumes the first column contains the X axis data. When you click "Finish," you get a reasonably								
59	good graph, one that shows the essence of what we are driving at. You could do some formatting, add labels, and make a								
60	prettier graph, like the one we show. We will have more to say about graphs in other BOC models. We also show the								
61	charts on a separate tab to demonstrate that they can be embedded in a worksheet or shown separately.								

Beta Graph, Years 1-5 Only

Stock Return (%) vs Market Return (%)

Beta Graph, Years 2-6

Beta Graph, Years 1-5

Beta Graph, Years 2-6